

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION

5 Entitled : A METHOD OF FABRICATING A HOLLOW MECHANICAL
 PART BY DIFFUSION WELDING AND SUPERPLASTIC
 FORMING

Inventors : Franchet Jean-Michel *et al.*

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Assignee : SNECMA MOTEURS

ABSTRACT OF THE DISCLOSURE

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The method of fabricating a hollow mechanical part of the invention includes a step b) of depositing an anti-diffusion substance in a predefined pattern on at least one face of primary parts to be assembled together. In characteristic manner, said step b) is performed in application of the following sequence of operations:

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b1) applying a layer of anti-diffusion substance comprising a powder over the entire surface of said at least one face of the primary parts;

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b2) localized sintering of the anti-diffusion substance in said predefined pattern by the heating that results from localized application of a laser beam along a track made up of at least one zone, thereby producing, in said at least one zone, both bonds between the particles of powder and also a diffusion phenomenon between the particles of powder and the material of said at least one face of the primary part; and

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b3) removing the anti-diffusion substance from the regions that are not subjected to the laser beam.

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The invention is applicable to fabricating a hollow blade for a turbomachine.